

This listing of claims will replace all prior versions, and listings, of claims in the application:

Listing of Claims:

1. (Currently Amended) A method for treating low solids content sediment from a body of water, said sediment including halogenated organic compound contaminants, the method comprising the steps of:

(1) dewatering the sediment to obtain a stream having a concentrated solids content of not greater than about 50% by weight comprised of inorganic and organic fractions;

(2) adding air or oxygen, a supplemental fuel, and a reactant to the concentrated solids stream, said reactant selected from the group consisting of sodium carbonate, sodium hydroxide, hydrogen peroxide, iron, aliphatic hydrocarbons, and mixtures thereof;

(3) pressurizing the concentrated solids stream to a pressure in the range of about 800 to 2500 psi;

(4) preheating the pressurized stream by passing the stream from step (6) through a heat exchanger;

(5) conveying the preheated stream into a reactor ~~operating at with~~ the fuel addition sufficient to maintain a self-sustaining reaction temperature ~~sufficient to~~ dehalogenate and decompose or denature the contaminant compounds;

(6) returning the dehalogenated and decomposed or denatured stream to the heat exchanger to provide heat for the preheating step; and,

(7) reducing the pressure of the stream for further processing.

2. (Currently Amended) The method as set forth in claim 1 including the step of operating the reactor at a temperature in the range of 800°CF to 2000°CF.

3. (Original) The method as set forth in claim 1 including, prior to said pressurizing step, the step of adding to the concentrated solids stream a catalyst selected from the group consisting of carbon, graphite, and iron.

4. (Original) The method as set forth in claim 1 wherein the dehalogenated stream includes heavy metal contaminants and the pressure reducing step comprises directing the stream through a small variable orifice to generate a liquid and atomized solids fraction and a volatilized fraction, and including the additional steps of:

- (1) condensing the volatilized fraction;
- (2) combining the condensate with the liquid and atomized solids fraction to provide a second concentrated solids stream ;
- (3) adding the water fraction from the dewatering step to the second concentrated solids stream to provide a dilute solids stream; and,
- (4) gravimetrically separating the solids from the dilute solids stream in stages to separate the heavy metals from the remaining dilute solids stream to provide a heavy metals solid stream and a remaining solids stream.

5. (Original) The method as set forth in claim 4 including the steps of:

- (1) dewatering the heavy metals solids stream to provide a concentrated heavy metals fraction and a liquid fraction; and,
- (2) dewatering the remaining solids stream to provide a treated solids fraction and a second liquid fraction.

6. (Original) The method as set forth in claim 1 including the steps of:

- (1) providing a first barge for process equipment utilized in performing steps (1) and (2);
- (2) providing a second barge for process equipment utilized in performing steps (3) - (7); and,
- (3) providing one or more low pressure process flow connection between said barges.

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7. (New) The method as set forth in claim 1 wherein the pressurizing step is performed with a high pressure hydraulic pump, and the step of adding air or oxygen comprises adding the air or oxygen directly into the suction intake of the pump.